

Maritime Operation for international security through the sustainability of the ocean.

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1. Preface

The purpose of this article is to highlight and address some of the challenges faced in conducting Maritime Operations for international security through the sustainability of the ocean and its resources. This article will consider a range of factors such climate change, economic development, costs of maintaining security forces as well as consider shaping the force structure of Maritime Forces to deal with the challenges of Maritime Security in the 21st Century.

2. Overview of Maritime Environment

Ever since the NASA led Apollo Space missions to the Moon were able to capture the planet Earth for the first time in its entirety against the vast blackness of space, humans have become aware of the uniqueness of our 'living planet'.



Figure 1 – Earth from outer space – ‘The Blue Planet’

The blue color that dominates the planet when viewed from outer space also highlights the importance the ocean has in the global environment and ecosystem. This also highlights the importance of Maritime Security. The oceans cover over 70% of the Earth's surface and sustain the livelihood of three billion people. The ocean is a crucial part of the biosphere, producing more than half of the world's oxygen and regulating global temperatures. It is an important part of the global economy, providing natural resources and open spaces for transportation

and other economic activity. Sustainability of this Maritime Environment will be crucial to Global Security and Economic Development, and will reduce the risk of conflict in the world.

3. Climate Change



Figure 2 – Extreme Weather (Hurricane)¹

Whilst the modern media has been particularly vocal about the negative effects of climate change, it is worth mentioning that as long as life has been present on earth, *the climate has always been changing*, in fact if the climate was to cease changing, then ‘life’ as we know it would simply not exist – change is a constant force in the universe and life as we know it depends on constant change. The *rate of change* however normally determines the impact on existing ecosystems systems and if the ecosystem is not prepared for or cannot anticipate the change, the results can be traumatic and, in some cases, catastrophic.

There can be no denying that the pace of climate change and its effects on human civilization have not been without traumatic and in some cases catastrophic consequences. The general agreement that overall global temperatures are rising due to the impact of human induced carbon increase in the atmosphere has led to an increase in weather variability and extreme events such as Cyclone, drought, fauna and flora species threatened with extinction, human settlement destruction, increased competition for resources and an increase in the movement of peoples due to displacement of communities. There have also been *some benefits* recently identified, in particular the melting of the polar ice caps (the Arctic in particular) has increased the potential for formerly inaccessible maritime trade routes through the Arctic Ocean as well as access to natural resources that were previously unattainable².

¹ <https://www.martin.fl.us/about-hurricanes>

² <https://geographical.co.uk/geopolitics/the-world-is-gearing-up-to-mine-the-arctic>

3.1 Climate change and Maritime Security

Climate change presents several challenges for security forces throughout the international environment in order to maintain security of the Maritime Domain through the United Nations Convention on Law of the Sea (UNCLOS). Maritime security threats are caused by state or nonstate actors, or nonhuman entities (like the climate), and undermine the well-being of marine ecosystems, communities' access to marine resources and/or the integrity of states' maritime jurisdictions. These threats include piracy, smuggling, human trafficking, illegal, unreported and unregulated fishing, international disputes, marine degradation and pollution as well as strategic competition between states³. For example, research shows that there has been an increase in maritime criminality/piracy in the Horn of Africa as a result of declines in fish stocks and other marine resources. Reports also have signaled an increase in piracy incidents in the Malacca and Singapore Straits in recent years — a surge attributed to the deteriorating socioeconomic situation in the region caused by the COVID-19 pandemic and lower fish catches as a result of climate change⁴.

3.2. Responding to Climate Change induced Natural Disasters

The increased demands forecast on national security forces to deal with the expected impact of climate change will necessitate careful planning and forecasting of future weather events and contingencies as well as shaping procurement and training of the forces necessary to deal with such events. Careful co-ordination and pooling of resources through co-operation and pooling together of resources. The conduct of Humanitarian Assistance and Disaster Response (HADR) exercises annually (as a minimum) will help with preparedness to respond to contingency situations and also help with shaping force structure, common procedures and integration of forces to achieve common aims in support of national interests.

The increase in operational tempo will ultimately increase the reliance on dependable, modern and effective unmanned systems to reduce the burden on manned

³<https://www.japantimes.co.jp/commentary/2024/06/12/world/climate-change-maritime-security-indo-pacific/>

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systems and maintain operational capability at sea will increase in importance. This increase in operational tempo will also place additional strain on existing fuel supplies required for Maritime Operations. In order to mitigate this, investment in sustainable and renewable energy technology should be considered (Wind, Solar, Bio-fuel), indeed the return to the 'Age of Sail' technology as a way to supplement and reduce the energy requirements of the world maritime fleets could be a feasible option to consider.

6. Economic Development

Economic Development is vital for improving and sustaining the standards of living for people throughout the world, and it is very much linked to the sustainability of the world's oceans and its resources. With a growing human population and increasing demand for resources, the connected ocean, coasts and inland waters are facing pressure through climate change, pollution and biodiversity loss. Without strong governance through clearly defined international law as well as support security forces that are able to enforce UNCLOS The increased competition for resources, as well as misuse of resources, will likely lead to conflict and instability.

The imbalance of resources between nations can contribute to this and it is imperative that nations that are rich in natural resources show a willingness to assist in the economic development of other nations through investment funds, and infrastructure projects. The creation of renewable energy solutions through the use of the ocean's renewable energy sources (wind, solar, geothermal, wave and tidal energy) are some of the ideas and technologies that can assist in economic development without having significant impact biosphere.

6.1 Maritime Operations in support of Economic Development

The conduct of Maritime Operations in support of Economic Development, through the provision of secure trade routes, customs inspection and enforcement of UNCLOS will be an ongoing mission for Maritime Security forces. The mission largely remains the same as it has previously been, however the mission scope should be expanded to include the

protection of renewable energy infrastructure (e.g. Solar and Wind farms), which is similar to the way current energy infrastructure such as oil and natural gas rigs are protected



Figure 3 – Patrol Boat security for Wind farms and Oil rigs⁵⁶

6.2 Shaping forces for Maritime Security

The force structure required to costs of developing and sustaining forces is a major challenge for all governments, however the streamlining and simplification of ship's hull design (for example) can help with reducing costs and also increase effectiveness of the force. The development of maritime capabilities that are specialized in HADR operations, is a great example of how a common vessel could be developed for use amongst many nations that may or may not have friendly relations, but have a common interest in regional stability. By having common hardware and software (as well as common processes) the benefits to be gained through Joint and Combined operations will be numerous as there will be efficiencies realized as well as an increase in the effectiveness of the capabilities. It should be noted that the majority of the Naval and other maritime security forces employed in security operations are HADR vessels and patrol boat sized vessels, which carry a reduced national security risk due to the absence of significant weapon systems (for example land attack strategic cruise missiles operating from submarines and destroyers are not employed from HADR and patrol vessels) This will obviously have to be managed with the national security requirements regarding information sharing and technology protection, but the benefits would largely outweigh the challenges, and would significantly contribute to Global and Regional peace and stability.

⁵ <https://www.telegraph.co.uk/news/2024/02/13/border-force-cutters-migrant-patrols-english-channel/>

⁶ https://www.freepik.com/premium-photo/patrol-vessel-gulf-thailand-with-oil-rig-drilling-platform-background_2466138.htm

In closing I would like to thank you for the opportunity to write this article and I look forward witnessing some of the exciting developments taking place within industry to ensure a sustainable and secure maritime environment